

Application No.: 10/026,699

Docket No.: 21994-00037-US

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS

1. (Currently amended) A method for manufacturing a disk substrate for mass production of a phase change optical disk, wherein the disk substrate is provided with a pit ~~having a first depth~~ and a separate groove having a second depth located in an outer circumference area of the pit, the method comprising the steps of:

coating a photoresist on a surface of a glass substrate so as to form a resist layer on the glass substrate;

exposing the surface of the resist layer to form a first depression having a first depth and a second depression having a second depth located in an outer circumference area of the first depression, wherein the first depth reaches the surface of the glass substrate and the second depth is shallower than the first depth;

developing the resist layer and forming the first depression and the second depression;

etching of the glass substrate from the surface thereof to form a pit;

~~Etching the surface of~~ ashing the resist layer in an oxygen atmosphere mixed with Argon and Oxygen in a volume ratio of 10 to 90% under the gas pressure of 0.1 to 1.5 Pa, to reduce a thickness of the resist layer until the bottom of the second depression reaches the surface of the glass substrate ~~wherein a pit having a first depth and a groove having a second depth are formed on the surface of the resist layer;~~

repeating etching of the glass substrate to deepen the depth of the pit until it reaches a predetermined depth, and to form a groove, having a predetermined depth, from the second depression; and

~~etching the depression having the first depth and the second depth from the surface of the resist layer of the disk substrate in atmosphere mixed with Argon and~~

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~~Oxygen in voluminal ratio of 10 to 90% under gas pressure of 0.1 to 1.5 Pa, wherein the first and the second depth of the depression become predetermined value respectively; and~~

repeating ashing of the resist layer in an oxygen atmosphere under the gas pressure of more than 7 Pa to remove the remaining resist layer.

Claims 2-5 (Cancelled)

6. (New) A method for manufacturing a disk substrate according to claim 1, wherein a difference of the depth of the first depression and the second depression is in a range of 30 nm to 60 nm.
7. (New) A method for manufacturing a disk substrate according to claim 1, wherein the resist layer has a heat resistance between 110°C and 130°C.
8. (New) A method for manufacturing a disk substrate according to claim 1, wherein the etching steps are carried out in a CHF₃ atmosphere under the gas pressure of 0.1 to 3.0 Pa.
9. (New) A method for manufacturing a disk substrate according to claim 1, wherein the resist layer is composed of Novolac resin.
10. (New) A method for manufacturing a disk substrate according to claim 6, wherein the resist layer has a heat resistance between 110°C and 130°C.
11. (New) A method for manufacturing a disk substrate according to claim 10, wherein the etching steps are carried out in a CHF₃ atmosphere under the gas pressure of 0.1 to 3.0 Pa.

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12. (New) A method for manufacturing a disk substrate according to claim 7, wherein the etching steps are carried out in a CHF_3 atmosphere under the gas pressure of 0.1 to 3.0 Pa.